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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/855,148	05/14/2001	Takeshi Sasaki	NEC 142491	1115

7590

05/22/2002

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EXAMINER

DUONG, THOI V

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 05/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/855,148

Applicant(s)

SASAKI, TAKESHI

Examiner

Thoi V Duong

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 ~~is/are~~ are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 ~~is/are~~ are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. Figures 1A, 1B, 1C, and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art in view of Shin et al. (USPN 6,086,443).

As shown in Figs. 1A, 1B, 1C, and 2, Applicant's Prior Art discloses a fabrication method of a liquid crystal display (LCD) panel 20, comprising the steps of: forming a seal member 4 containing second spacers 5 on a TFT transparent substrate 1 such that said seal member surrounds a display area of said liquid crystal display panel; arranging first spacers on said display area on the TFT substrate; dropping liquid crystal 3 onto an area surrounded by said seal member on the TFT substrate; forming a panel by sticking a color-filter transparent substrate on the TFT substrate with said seal member in a vacuum chamber; putting said panel under atmospheric pressure to

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deform said first spacers through a deformation of said panel; and hardening said seal member after an inner volume of said panel becomes equal to a volume of said liquid crystal.

Applicant's Prior Art discloses a fabrication method of a LCD panel that is basically the same as that recited in claim 1 except that the initial size of the first spacer in a cell gap direction is not larger than an appropriate cell gap of the LCD panel. As shown in Figs. 1 and 2, Shin discloses a fabrication method of a LCD panel in which spacers 4 have an initial size larger than a goal cell gap between two substrates 10 and 20 by 10-30 %, and the spacers 40 in the cell gap are compressed down compared with its uncompressed state by 10-30 % (col. 4, lines 38-42) in order to obtain a uniform cell gap for the LCD panel. Accordingly, a relative value of the initial average size of the spacers to the appropriate cell gap is by 110-130 %. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Applicant's Prior Art with the teaching of Shin by using first spacers having initial size in a cell gap direction larger than an appropriate cell gap necessary to perform an appropriate liquid crystal display so as to maintain an uniform cell gap of the display and hence to obtain a high display quality.

With respect to claim 2, as known in the art, plastic beads are generally used for the spacers to obtain elasticity.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art as applied to claims 1, 2, and 4-6 above, and further in view of Teraguchi et al. (USPN 6,100,958) and Hiraichi et al. (USPN 6,204,907 B1)

Applicant's Prior Art as modified in view of Shin above includes all that is recited in claim 3 except that the second spacer is not pinched between the substrates under atmospheric pressure. Teraguchi discloses a fabrication method to produce a LCD device having a good sealing portion and excellent uniformity in a cell gap including a step of controlling a cell gap by evacuating a space between a pair of substrates and by pressing the pair of the substrates with atmospheric pressure (col. 2, lines 52-54). As shown in Fig. 4, a seal member 2 contains a spacer 3 which is pinched between a pair of substrates 1 under atmospheric pressure applied to the substrates. Moreover, Hiraishi discloses, as shown in Fig. 2, a LCD device comprising first spacers 7 which are plastic beads and second spacers which are glass beads disposed in a seal 14 to maintain the gap between a TFT substrate 10 and an opposite substrate 20. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the Applicant's Prior art with the teaching of Teraguchi and Hiraishi by having second spacers formed of a material such as glass beads, which is hardly deformed when it is pinched between the substrates under atmospheric pressure so as to obtain a good linearity in the sealing edge and a uniform cell gap for the display.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication should be directed to Thoi V. Duong at telephone number (703) 308-3171.

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Thoi Duong

05/19/2002

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